MER Shift Reports

STS-107

Day 15 Shift 1

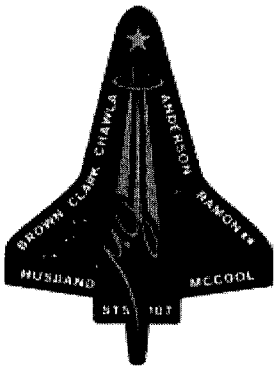
AVIONICS
FLIGHT CONTROL / GNC DAILY REPORT

01/30/03

STS-107
Daily Report
Flight Day 15

Flight controls and GNC systems are performing nominally.

Mike Reves
1-30-03



DPS PASS FSW, MEDS & H/W MER Shift Report

STS-107 **Date: 1/30/2003** **GMT: 030/17:00:00**
Shift: 1st

SYSTEM STATUS / ISSUES BEING WORKED

- All DPS systems performing nominally.

DPS Team Lead: Ken Wood **Signature:**

STS-107 ESD SYSTEMS SHIFT REPORT
DAY 15 SHIFT 1
GMT 030/17:00

Energy Division Subsystems (MPS, RCS, OMS, FC/PRSD, APU, and Hydraulics) continue to function satisfactorily with the following notes or exceptions:

FC/PRSD – Hydrogen Tank 8 depleted to residual quantity at 030:07:20 GMT; Hydrogen Tank 9 depleted to residual quantity at 030:11:30 GMT.

The fuel cells 1 & 3 alternate water line temperatures continue to be erratic, indicating slight leakage of warm fuel cell water through the check valves.

Average mission power levels have averaged 16.8 kW as of 030:12:27 GMT. Predicted average power level was 18.8 kW so cryo margins continue to increase.

EPDC – The only problem being worked by EPDC is the intermittent "sluggish" AC2 phase B current response. The plots for the last 24 hours indicate that there were multiple, intermittent occurrences of sluggish response on AC2 by phase B.

Also, EPDC supported MOD/EGIL on the assessment of the desired breaker configuration for the Orbiter AC power to the payload bay. The nominal configuration is to have the breaker closed but supplying no loads. In the event of a Spacehab inverter failure with no indication of a bus short, the Orbiter bus would be selected to supply 3 phase AC power via the breaker to the Spacehab module. There was concern that, in light of the hum/sep issue with Spacehab, there may be water/condensation issues which could present a bus-short hazard. Since the Spacehab has sufficient telemetry to determine if a short exists prior to energizing loads from the orbiter, EPDC concurred with EGIL that the nominal configuration is acceptable for current mission requirements. Additionally, the crew has not reported any residual or free-water in the SH module over the last several days and there is a timelined activity today to do another inspection of the HSA area and cleanup/secure if required. Also, past flight data shows that a short in the AC system would cause only a minor voltage transient (~1 volt max.) on the Main Orbiter bus. This level of transient would be insignificant to other DC equipment powered on that Main bus.

All monitored voltage and current measurements were nominal. The 24 hour plots and the strip chart recorder data was reviewed with no unusual signatures noted.

OMS/RCS – The Left OMS GN2 Accumulator pressure is still holding. Left and Right OMS pod heaters were configured from A – Auto, B – Off to A – Off, B – Auto at 030/13:55 GMT. The aft RCS configuration is still straight feed.

OMS and RCS system data has been reviewed up through 030/14:00 GMT. System performance continues as expected with no anomalies noted. All vernier jet firings

through 030/12:39:00.000 GMT have been reviewed. There have been no anomalous pulses.

RCS PRESSURIZATION LEG FRCS: B LRCS: B RRCS: B

23 of 38 primary thrusters have been fired. No new primary thrusters have been fired since the previous report.

Walter Scott
ESD Team Lead

MER FLIGHT CREW EQUIPMENT- GFE/CFE
STS-107 SHIFT REPORT

TO: MER MANAGER

SUBJECT: FD15; 2nd SHIFT REPORT

GMT: 030:17:00

EVENTS:
Red Team has continued another day of experiments including SOLSE and MEIDEX Science. There have been no concerns with FCE hardware during this shift.

FORWARD ACTIONS:
Continuing to monitor CHIT activity.

CHITS (Monitoring / Working / Waiting for Closure):
STS0014 INFO ONLY – Spacehab WSA Cleanup IFM - CLOSED
Submitted FCE concurrence with vacuum cleaner steps defined in CHIT STS0014. This work may be accomplished on Flight Day 15.

HARDWARE STATUS:
There have been no FCE anomalies recorded this reporting period. It is assumed all FCE is performing nominally.

Flight Crew Equipment- GFE/CFE
Michael G. Kovich
01/30/03

STS-107
OMS/RCS Day 15 Shift 1 Report

INITIATOR: Arrieta
DATE: January 30, 2003

MET: 13/23:25
GMT: 030/15:05
CENTRAL TIME: 09:05 AM CST

	Left		Right		Forward	
	Oxidizer	Fuel	Oxidizer	Fuel	Oxidizer	Fuel
PFS %	64.2	64.8	64.0	63.4	46.4	43.2
Interconnect Usage	4.120		3.991			

ORBIT

1. **Left OMS GN2 Accumulator pressure is holding.**
2. **Left and Right OMS pod heaters were configured** from A – Auto, B – Off to A – Off, B – Auto at 030/13:55 GMT.

Data Review

1. OMS and RCS system data has been reviewed up through 030/14:00 GMT. System performance continues as expected with no anomalies noted.
2. All vernier jet firings through 030/12:39:00.000 GMT have been reviewed. There have been no anomalous pulses.

RCS PRESSURIZATION LEG **FRCS: B** **LRCS: B** **RRCS: B**

AFT RCS INTERCONNECT CONFIGURATION: RCS Straight Feed.

23 of 38 primary thrusters have been fired. No new primary thrusters have been fired since the previous report:

F1F		L1A	X	R1A	X
F2F		L3A	X	R3A	X
F3F		L1L		R1R	
F1L		L2L		R2R	
F3L	X	L3L	X	R3R	X
F2R		L4L		R4R	
F4R	X	L1U	X	R1U	X
F1D	X	L2U		R2U	
F2D	X	L4U		R4U	
F3D	X	L2D	X	R2D	X
F4D	X	L3D	X	R3D	X
F1U	X	L4D	X	R4D	X
F2U	X				
F3U	X				

STS-107 (OV-102, FLT 28)
1/30/03
9:00 AM
On-Orbit Shift Report

The HYD/WSB Systems are operating normally and all parameters are within their expected ranges. There have been no additional circulation pump runs for thermal conditioning or bootstrap re-pressurization. The HYD/WSB group is not working any issues at this time.

Total Circ Pump Runs

	Thermal	**Accumulator Recharges**
Sys 1:	1 for elevon park	0
Sys 2:	0 runs	0
Sys 3:	0 runs	0

Charles A. Ritrivi HYD/WSB SSE

STS-107
MER Comm and Track Shift Report
GMT 030:14:00
Shift 1

All comm and track systems are operating nominally.

The Crew executed MOD chit STS-0016, Audio/ICOM B Troubleshooting. The Audio system was tested good when the system was reconfigured to the correct configuration. The Crew confirmed the Audio was not configured correctly at activation and there is no problem with the audio system. MER Funny 02 should be closed as an Onboard Misconfiguration.

Ken McCrary

MER Comm & Track

Orbiter Thermal

STS-107 MER TCS Thermal 1st Shift Report

January 30, 2003 11:00AM, 030/17:00 GMT (14/01:21 MET)

All thermal systems are performing nominally and all subsystem temperatures are within acceptable limits.

We are currently working on EOM+4 extension days thermal analysis. A meeting today at 3 pm with EECOM, Payload to finalize TCS recommendation.

Than Nguyen/Steve Tidwell

MER Shift Reports

STS-107

Day 15 Shift 2

ORBITER ECLSS

STS-107 ECLSS SHIFT REPORT

FLIGHT DAY 16

SHIFT 2

All ECLSS systems performing nominally.
A simo water dump commenced at MET 13/15:45 with the opening of the supply water dump valve, followed by the opening of the waste dump valve at 13/15:54 MET. The supply water portion of the dump lasted approximately 20 minutes and was terminated at MET 13/16:05 with the closing of the supply water dump isolation valve. The waste water portion of the dump lasted approximately 16 minutes and ended with the closing of the waste water dump valve.

Consumables:	Supply water	532.7	lb.
	Waste water	87.6	lb.
	Orbiter Nitrogen	138.3	lb.

Shift Leader
GMT 031/01:02

STS-107 MER Thermal 2nd Shift Report

031/01:00 GMT, 19:00 CST 01/30/2003

All thermal systems are performing nominally and all temperatures are within acceptable limits.

A meeting was held today at 3 pm with TCS, EECOM, ECLSS , Payloads and Pointing to finalize NEOM and extension day attitudes for end of mission thermal conditioning. Five options were considered. The consensus agreement, basically, was to use 8 hours +ZSI followed by 8 hours –ZLV +YVV Roll –40 for NEOM and all four extension days. If a water dump is required just prior to this sequence, it would be planned for one hour and shorten both attitudes by ½ hour. Although not ideal for all aspects, this was considered the best compromise for all. Pointing is in process of building this ATL for the first extension day.

Dave Russell

Dave Russell / David Norman

MER FLIGHT CREW EQUIPMENT- GFE/CFE
STS-107 SHIFT REPORT

TO: MER MANAGER

SUBJECT: FD15; 3rd SHIFT REPORT

GMT: 031:01:00

EVENTS:
- BLUE TEAM is currently on shift. Crew is continuing with their experiments.

- During Handover reports to FD, PAYLOAD reported that no water was found in WSA during inspection. MMACS reported that no IFM procedures are planned, but are preparing for ergometer stow operations.

- Dave Stephenson (x35859) called console during Mike Kovich's shift inquiring about crew calldown re: temperature reading of PGSC power supply at 124°C. This information was given by Kim Ess at an earlier meeting. FCE console is trying to confirm this report for future reference. IFM/MMACS consoles reported that they did not hear this calldown.

FORWARD ACTIONS:
None at this time.
Continuing to monitor CHIT database.

CHITS (Monitoring / Working / Waiting for Closure):
There are currently no OPEN Chits with direct/indirect effect on IVA FCE hardware.

HARDWARE STATUS:
There have been no FCE anomalies recorded this reporting period. It is assumed all FCE is performing nominally.

Generoso (Bum) Carrera Jacinto III / Stacey Kelley
[for Jimmy Fuller]
Flight Crew Equipment- GFE/CFE

STS-107 ESD SYSTEMS SHIFT REPORT
DAY 15 SHIFT 2
GMT 031/00:00

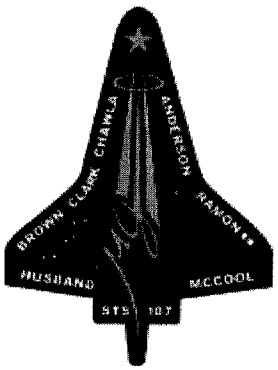
Energy Division Subsystems (MPS, RCS, OMS, FC/PRSD, APU, and Hydraulics) continue to function satisfactorily with the following notes or exceptions:

EPDC - The only problem being worked by EPDC is the intermittent "sluggish" AC2 phase B current response. The plots for the last 24 hours indicate that there were no additional occurrences of sluggish response on AC2 by phase B.

Also, EPDC supported MOD/EGIL on the assessment of the desired breaker configuration for the Orbiter AC power to the payload bay. The nominal configuration is to have the breaker closed but not supplying loads. In the event of a Spacehab inverter failure with no indication of a bus short, the Orbiter bus would be selected to supply 3 phase AC power via the breaker to the Spacehab module. There was concern that, in light of the humidity/separator issue with Spacehab, there may be water/condensation issues which could present a bus-short hazard. Since the Spacehab has sufficient telemetry to determine if a short exists before energizing loads from the orbiter, EPDC concurred with EGIL that the nominal configuration is acceptable for current mission requirements. Additionally, the crew has not reported any residual or free-water in the SH module over the last several days and there is a time-lined activity today to do another inspection of the HSA area and cleanup/secure if required. Also, past flight data shows that a short in the AC system would cause only a minor voltage transient (~1 volt max.) on the Main Orbiter bus. This level of transient would be insignificant to other DC equipment powered on that Main bus.

All monitored voltage and current measurements were nominal. The 24 hour plots and the strip chart recorder data was reviewed with no unusual signatures noted.

Tom Davies
ESD Team Lead



DPS PASS FSW, MEDS & H/W MER Shift Report

STS-107 **Date: 1/30/2003** **GMT: 031/01:00:00**
Shift: 2nd

SYSTEM STATUS / ISSUES BEING WORKED

- All DPS systems performing nominally.

DPS Team Lead: Michael Frank **Signature:**

MER Shuttle Safety Console
STS-107 FD 15 Shift 2
GMT 031:02:00

The MER Safety Console is not working any safety of flight issues.

Jim Gardner

MER Shift Reports

STS-107

Day 15 Shift 3

Orbiter Thermal

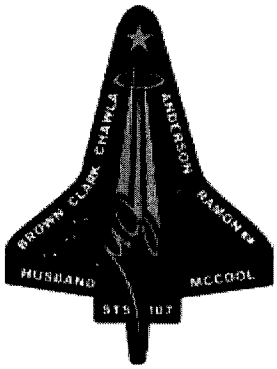
Thermal 3rd Shift Report

STS-107, January 30, 2003
3 AM, MET 014/17:21 (31/09:00 GMT)

All temperatures are within acceptable limits and all thermal systems are operating nominally.

A preliminary extension day timeline (out to EOM+4) has been generated by Pointing, which incorporates the +ZSl and –ZLV+YVV Roll –40. The first extension day (EOM+1) only has 5.2 hrs of -ZLV+YVV Roll –40 instead of the requested 8hrs. TCS is working to resolve this discrepancy.

Tim Davies



DPS PASS FSW, MEDS & H/W MER Shift Report

STS-107 **Date: 1/31/2003** **GMT: 031/09:00:00**
Shift: 3rd

SYSTEM STATUS / ISSUES BEING WORKED

- All DPS systems performing nominally.

DPS Team Lead: Tom Swartley **Signature:** Tom Swartley

MER FLIGHT CREW EQUIPMENT- GFE/CFE
STS-107 SHIFT REPORT

TO: MER MANAGER

SUBJECT: FD16; 1st SHIFT REPORT

GMT: 031:09:00

EVENTS:
Crews beginning to button up for their trip home, but there are a few experiments still being run.

FORWARD ACTIONS:
Continuing to monitor CHIT database.

CHITS (Monitoring / Working / Waiting for Closure):
There are currently no OPEN Chits with direct/indirect effect on IVA FCE hardware.

HARDWARE STATUS:
There have been no FCE anomalies recorded this reporting period. It is assumed all FCE is performing nominally.

Kevin M. Rullman
Flight Crew Equipment- GFE/CFE

STS-107 ESD SYSTEMS SHIFT REPORT
DAY 15 SHIFT 3
GMT 031/09:00

Energy Division Subsystems (MPS, RCS, OMS, FC/PRSD, APU, and Hydraulics) continue to function satisfactorily with the following notes or exceptions:

The crew tried to use the Fuel Cell Monitoring System and had the same problem as reported in Anomaly EGIL-002, however, the crew verified that they were using the backup cable, S/N 1004. The crew was directed to terminate the effort, as it was about to impact the experiment timeline.

Chuck Beatty
ESD Team Lead

ORBITER ECLSS

STS-107 ECLSS SHIFT REPORT

FLIGHT DAY 16

SHIFT 3

All ECLSS systems performing nominally. Waste water dump completed.

Consumables:	Supply water	554.3	lb.
	Waste water	23.6	lb.
	Orbiter Nitrogen	135.5	lb.

Karen Thacker
GMT 031/09:12

MER Shuttle Safety Console
STS-107 FD 15 Shift 3
GMT 031:09:00

The MER Safety Console is not working any safety of flight issues.

David Melendez